

Amendments to the Claims

Please cancel Claim 25. Please amend Claims 1, 2, 5, 6, 7, 12, 14, 16, 28, 31, 32, 38, and 47. Please add new Claims 51-98. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Currently Amended) A method for managing membership of nodes in a computer network cluster, the method comprising:
 - defining a shareable storage device to store data for a network; [[and]]
 - defining a message location on the shareable storage device; and
 - granting membership in a network cluster to a node if the node has access to the message location on the shareable storage device.
2. (Currently Amended) The method of Claim 1 further comprising:
 - revoking membership of the node in the network cluster if the node ceases to have access to the message location on the shareable storage device.
3. (Previously Presented) The method of Claim 2 further comprising:
 - ceasing operation of the network cluster if no node has access to the shareable storage device.
4. (Previously Presented) A system for managing membership of nodes in a computer network cluster, comprising:
 - a network infrastructure for supporting a plurality of nodes in a network cluster;
 - a storage device separated from the network infrastructure and interconnectable to a plurality of nodes;
 - a node interconnected with the storage device; and
 - a manager mechanism to grant membership in the network cluster to the node based on the node having access to the storage device.

5. (Currently Amended) A computer program product for managing membership of nodes in a computer network cluster, the computer program product comprising a computer usable medium having computer readable code thereon, including program code that:
 defines a shareable storage device to store data for a network cluster; [[and]]
 defines a message location on the shareable storage device; and
 grants membership in the network cluster to a node if the node has access to the message location on the shareable storage device.
6. (Currently Amended) The method of Claim 1 wherein granting membership comprises, from the node, accessing [[a]] the message location in the shareable storage device.
7. (Currently Amended) The method of Claim 6 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
8. (Previously Presented) The method of Claim 7 wherein granting membership comprises accessing each identified physical storage device.
9. (Previously Presented) The system of Claim 4 wherein the manager mechanism:
 revokes membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
10. (Previously Presented) The system of Claim 9 wherein the manager mechanism:
 ceases operation of the network cluster if no node has access to the shareable storage device.
11. (Previously Presented) The system of Claim 4 wherein the manager mechanism includes a message location in the shareable storage device accessed by the node being granted membership in the network cluster.

12. (Currently Amended) The system of Claim 11 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
13. (Previously Presented) The system of Claim 12 wherein each identified physical storage device is accessible by the node being granted membership in the network cluster.
14. (Currently Amended) The computer program product of Claim 5 further comprising program code that:
 - revokes membership of the node in the network cluster if the node ceases to have access to the message location on the shareable storage device.
15. (Previously Presented) The computer program product of Claim 14 further comprises program code that:
 - ceases operation of the network cluster if no node has access to the shareable storage device.
16. (Currently Amended) The computer program product of Claim 5 wherein granting membership comprises, from the node, accessing [[a]] the message location in the shareable storage device.
17. (Previously Presented) The computer program product of Claim 16 wherein the message location identifies the cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
18. (Previously Presented) The computer program product of Claim 17 wherein granting membership comprises accessing each identified physical storage device.

19. (Previously Presented) A method for managing membership of nodes in a computer network cluster, the method comprising:
 - defining a shareable storage device to store data for a network;
 - creating a message location on the shareable storage device; and
 - granting membership in a network cluster to a node if the node has access to the shareable storage device, using the message location.
20. (Previously Presented) A system for managing membership of nodes in a computer network cluster, comprising:
 - a network infrastructure for supporting a plurality of nodes in a network cluster;
 - a storage device separated from the network infrastructure and interconnectable to a plurality of nodes;
 - a message location on the shareable storage device;
 - a node interconnected with the storage device; and
 - a manager mechanism to grant membership in the network cluster to the node based on the node having access to the storage device, using the message location.
21. (Previously Presented) A computer program product for managing membership of nodes in a computer network cluster, the computer program product comprising a computer usable medium having computer readable code thereon, including program code that:
 - defines a shareable storage device to store data for a network cluster;
 - creates a message location on the shareable storage device; and
 - uses the message location to grant membership in the network cluster to a node if the node has access to the shareable storage device.
22. (Previously Presented) The method of Claim 1 further comprising:
 - always granting membership in the network cluster to a node when the node has access to the shareable storage device.

23. (Previously Presented) The system of Claim 4 wherein the manager mechanism always grants membership in the network cluster to the node exclusively based on the node having access to the storage device.
24. (Previously Presented) The computer program of Claim 5 further includes program code to:
 - always grant membership in the network cluster to a node if the node has access to the shareable storage device.
25. Canceled
26. (Previously Presented) A system for managing membership of nodes in a computer network cluster, the system comprising:
 - a means for defining a shareable storage device to store data for a network;
 - a means for creating a message location on the shareable storage device; and
 - a means for granting membership in a network cluster to a node if the node has access to the shareable storage device, using the message location.
27. (Previously Presented) A method for managing membership of nodes in a computer network cluster, the method comprising:
 - defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each node in a computer network cluster; and
 - monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including adding a node to the computer network cluster in response to the node obtaining access to the shareable storage device.

28. (Currently Amended) A system for managing membership of nodes in a computer network cluster, the system comprising:
- a network infrastructure for supporting a plurality of nodes in a computer network cluster;
 - a shareable storage device separated from the network infrastructure and interconnectable to the plurality of nodes;
 - a message location on the shareable storage device;
 - a node interconnected with the shareable storage device; and
 - a manager mechanism for monitoring node membership in the computer network cluster based on the accessibility of the message location on the shareable storage device to each node, including removing a node from the computer network cluster in response to the node losing access to the shareable storage device.
29. (Previously Presented) A system for managing membership of nodes in a computer network cluster, the system comprising:
- a means for defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each node in a computer network cluster; and
 - a means for monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including adding a node to the computer network cluster in response to the node obtaining access to the shareable storage device.

30. (Previously Presented) A system for managing membership of nodes in a computer network cluster, the system comprising:
- a means for defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each node in a computer network cluster; and
 - a means for monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including removing a node from the computer network cluster in response to the node losing access to the shareable storage device.
31. (Currently Amended) A ~~system~~ computer program product comprising:
- a computer usable medium having computer readable code thereon, including program code for managing membership of nodes in a computer network cluster, ~~the system comprising:~~ by:
 - ~~a means for~~ defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each node in a computer network cluster; and
 - ~~a means for~~ monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including removing ~~adding~~ a node [[to]] ~~from~~ the computer network cluster in response to the node losing ~~obtaining~~ access to the shareable storage device.
32. (Currently Amended) A system for managing membership of nodes in a computer network cluster, the system comprising:
- a means for defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each node in a computer network cluster; [[and]]
 - a means for defining a message location on the shareable storage device; and
 - a means for monitoring node membership in the computer network cluster based on the accessibility of the message location on the shareable storage device to each node,

including removing a node from the computer network cluster in response to the node losing access to the shareable storage device.

33. (Previously Presented) A method for managing membership of nodes in a computer network cluster, the method comprising:
- defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each member node in a computer network cluster; and
 - regardless of network connectivity, denying membership in the computer network cluster to a node if the node is unable to access the shareable storage device.
34. (Previously Presented) The method of Claim 33 further comprising:
- granting membership to the node if the node has access to the shareable storage device.
35. (Previously Presented) The method of Claim 34 further comprising:
- revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
36. (Previously Presented) The method of Claim 33 further comprising:
- ceasing operation of the network cluster if no node has access to the shareable storage device.
37. (Previously Presented) The method of Claim 34 wherein granting membership comprises, from the node, accessing a message location in the shareable storage device.
38. (Currently Amended) The method of Claim 37 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.

39. (Previously Presented) The method of Claim 38 wherein granting membership comprises accessing each identified physical storage device.
40. (Previously Presented) A computer program product for managing membership of nodes in a computer network cluster, the computer program product comprising a computer usable medium including program code for:
- defining a shareable storage device to store data for a network cluster; and
 - denying membership in the network cluster to a node if the node has no access to the shareable storage device regardless of network connectivity of the node.
41. (Previously Presented) The computer program product of Claim 40 further comprising program code for:
- granting membership to the node if the node has access to the shareable storage device.
42. (Previously Presented) The computer program product of Claim 40 further comprises program code for:
- ceasing operation of the network cluster if no node has access to the shareable storage device.
43. (Previously Presented) A system for managing membership of nodes in a computer network cluster, comprising:
- a network infrastructure for supporting a plurality of nodes in a network cluster;
 - a storage device separated from the network infrastructure and interconnectable to a plurality of nodes;
 - a node interconnected with the storage device; and
 - a manager mechanism to grant membership in the network cluster to the node based on the node having access to the storage device regardless of network connectivity of the node.

44. (Previously Presented) The system of Claim 43 wherein the manager mechanism:
grants membership to the node if the node has access to the shareable storage device.
45. (Previously Presented) The system of Claim 44 wherein the manager mechanism:
revokes membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
46. (Previously Presented) The system of Claim 45 wherein the manager mechanism includes a message location in the shareable storage device accessed by the node being granted membership in the network cluster.
47. (Currently Amended) The system of Claim 46 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
48. (Previously Presented) The system of Claim 47 wherein each identified physical storage device is accessible by the node being granted membership in the network cluster.
49. (Previously Presented) The system of Claim 43 wherein the manager mechanism:
ceases operation of the network cluster if no node has access to the shareable storage device.
50. (Previously Presented) A system for managing membership of nodes in a computer network cluster, the system comprising:
a means for defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each member node in a computer network cluster; and

a means for denying membership in the computer network cluster to a node if the node has no access to the shareable storage device regardless of network connectivity of the node.

51. (New) A method for managing membership of nodes in a computer network cluster, the system comprising:

defining a shareable storage device to store data for a computer network, the shareable storage device being accessible by each node in a computer network cluster; and

monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including removing a node from the computer network cluster in response to the node losing access to the shareable storage device.

52. (New) The method of Claim 51 wherein removing a node from the computer network cluster in response to the node losing access to the shareable storage device further includes:

revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.

53. (New) The method of Claim 52 further including:

ceasing operation of the network cluster if no node has access to the shareable storage device.

54. (New) The method of Claim 51 further including:

granting membership comprises to a node if the node has access to the shareable storage device using a message location in the shareable storage device.

55. (New) The method of Claim 54 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
56. (New) The method of Claim 55 wherein granting membership comprises accessing each identified physical storage device.
57. (New) A system for managing membership of nodes in a computer network cluster, the system comprising:
- a network infrastructure for supporting a plurality of nodes in a computer network cluster;
 - a shareable storage device separated from the network infrastructure and interconnectable to the plurality of nodes;
 - a node interconnected with the shareable storage device; and
 - a manager mechanism for monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including removing a node from the computer network cluster in response to the node losing access to the shareable storage device.
58. (New) The system of Claim 57 wherein the manager mechanism:
- revokes membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
59. (New) The system of Claim 58 wherein the manager mechanism:
- ceases operation of the network cluster if no node has access to the shareable storage device.
60. (New) The system of Claim 57 wherein the manager mechanism includes a message location in the shareable storage device accessed by a node being granted membership in the network cluster.

61. (New) The system of Claim 60 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
62. (New) The system of Claim 61 wherein each identified physical storage device is accessible by the node being granted membership in the network cluster.
63. (New) The method of Claim 19 further comprising:
revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
64. (New) The method of Claim 63 further comprising:
ceasing operation of the network cluster if no node has access to the shareable storage device.
65. (New) The method of Claim 19 wherein granting membership comprises, from the node, accessing the message location in the shareable storage device.
66. (New) The method of Claim 65 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
67. (New) The method of Claim 66 wherein granting membership comprises accessing each identified physical storage device.
68. (New) The system of Claim 20 wherein the manager mechanism:
revokes membership of the node in the network cluster if the node ceases to have access to the shareable storage device.

69. (New) The system of Claim 68 wherein the manager mechanism:
ceases operation of the network cluster if no node has access to the shareable storage device.
70. (New) The system of Claim 20 wherein the manager mechanism includes a message location in the shareable storage device accessed by the node being granted membership in the network cluster.
71. (New) The system of Claim 70 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
72. (New) The system of Claim 71 wherein each identified physical storage device is accessible by the node being granted membership in the network cluster.
73. (New) The method of Claim 27 further comprising:
revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
74. (New) The method of Claim 73 further comprising:
ceasing operation of the network cluster if no node has access to the shareable storage device.
75. (New) The method of Claim 27 wherein granting membership comprises, from the node, accessing a message location in the shareable storage device.
76. (New) The method of Claim 75 wherein the message location identifies the cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.

77. (New) The method of Claim 76 wherein granting membership comprises accessing each identified physical storage device.
78. (New) The system of Claim 28 wherein the manager mechanism:
revokes membership of the node in the network cluster if the node ceases to have access to the message location on the shareable storage device.
79. (New) The system of Claim 78 wherein the manager mechanism:
ceases operation of the network cluster if no node has access to the shareable storage device.
80. (New) The system of Claim 28 wherein the manager mechanism includes a message location in the shareable storage device accessed by the node being granted membership in the network cluster.
81. (New) The system of Claim 80 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
82. (New) The system of Claim 81 wherein each identified physical storage device is accessible by the node being granted membership in the network cluster.
83. (New) A computer program product including comprising:
computer readable code including instructions for managing membership of nodes in a computer network cluster by:
defining a shareable storage device to store data for a computer network,
the shareable storage device being accessible by each node in a computer network cluster; and
monitoring node membership in the computer network cluster based on the accessibility of the shareable storage device to each node, including adding a

node to the computer network cluster in response to the node obtaining access to the shareable storage device.

84. (New) The computer program product of Claim 83 further includes computer readable code for revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
85. (New) The computer program product of Claim 84 further includes computer readable code for ceasing operation of the network cluster if no node has access to the shareable storage device.
86. (New) The computer program product of Claim 83 wherein the computer readable code which adds a node to the computer network cluster in response to the node obtaining access to the shareable storage device further includes computer readable code to grant membership to the node.
87. (New) The computer program product of Claim 86 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
88. (New) The computer program product of Claim 87 wherein granting membership further includes accessing each identified physical storage device.
89. (New) The computer program product of Claim 21 further includes computer readable code for revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
90. (New) The computer program product of Claim 89 further includes computer readable code for ceasing operation of the network cluster if no node has access to the shareable storage device.

91. (New) The computer program product of Claim 90 further including computer readable code which grants a node membership, in response to the node obtaining access to the shareable storage device.
92. (New) The computer program product of Claim 21 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.
93. (New) The computer program product of Claim 92 wherein granting membership further includes accessing each identified physical storage device.
94. (New) The computer program product of Claim 31 wherein the computer readable code that removes a node from the computer network cluster further includes computer readable code revoking membership of the node in the network cluster if the node ceases to have access to the shareable storage device.
95. (New) The computer program product of Claim 94 further includes computer readable code for ceasing operation of the network cluster if no node has access to the shareable storage device.
96. (New) The computer program product of Claim 31 further including computer readable code which grants a node membership, in response to the node obtaining access to a message location on the shareable storage device.
97. (New) The computer program product of Claim 96 wherein the message location identifies the network cluster by identifying at least one physical storage device from the shareable storage device that is shared by the cluster member nodes.

98. (New) The computer program product of Claim 97 wherein granting membership further includes accessing each identified physical storage device.